

REMARKS

Reconsideration of this application is respectfully requested. Upon entry of the foregoing amendment, claims 60-78 are pending in the application, with claims 60, 73, 77, and 78 being the independent claims.

Interview Request

The Examiner has once again denied Applicant's request for an interview. The Examiner states that the request was carefully considered "but no call was made since the issues appear clear." Applicant respectfully disagrees that the issues appear clear. Far from being clear, the Examiner's position that the claims are "clearly anticipated" appears to be without support. Applicant continues to believe that an interview would expedite this application to completion. For the third time, Applicant renews the request for an interview with the Examiner in accordance with M.P.E.P. 713.01. Absent the benefit of an interview, Applicant submits the following remarks in an attempt to more clearly outline the distinctions between the pending claims and the cited references.

The Claims Particularly Point Out and Distinctly Claim the Invention

Claims 61 and 63 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claims the subject matter that the Applicant regards as the invention. The Applicant has amended claims 61 and 63 to overcome the antecedent basis and clarity issues noted by the Examiner.

The Claims are Patentable over Jones

Claims 60, 62, 65, 66, 73, 74 and 76-78 stand rejected under 35 U.S.C. 102(b) as being anticipated by the U.S. Patent No. 3,263,824 to Jones et al. ("the Jones patent"). The Examiner

states that the claims are “clearly anticipated” by the Jones patent without elaboration. Applicant respectfully disagrees.

The Jones patent discloses a servo-controlled remote manipulator that provides force feedback to a user of the device. The device includes a glove worn by a user that includes sensors to measure the rotational position of joints in the glove. The device also includes a manipulator that includes sensors to measure the rotational position of the joints of the manipulator. Outputs of the glove sensors are compared to the manipulator sensors such that the position of the joints of the glove correspond to the position of the joints of the manipulator.

In an embodiment of the device, the manipulator can grasp an object. When the fingers of the manipulator come in contact with the object, the fingers of the manipulator stop following the corresponding fingers of the glove, as detected by the sensors at each of the joints. When such a situation is detected, force feedback is provided to the wearer of the glove to simulate the resistance force that would be experienced if the wearer were actually grasping the object. (See Col. 3, lines 15-44).

Independent Claim 60

None of the sensors disclosed in the Jones patent, however, measure the force feedback output to the wearer of the glove. The only disclosed manner in which the force feedback is controlled is via calculations made by the various position sensors. There is no disclosure or suggestion whatsoever of measuring any force feedback. Hence, the Jones patent fails to disclose or suggest “a second sensor configured to measure the force feedback output collectively by the actuator and the force feedback member” as recited in claim 60.

Independent Claim 73

Similar to claim 60, the Jones patent fails to disclose or suggest “determining a magnitude of force feedback output at the force feedback interface” as recited in claim 73.

Independent Claim 77

Independent claim 77 recites “a second sensor, the second sensor outputting an applied force signal based on the force feedback output.” The Jones patent fails to disclose or suggest outputting an applied force signal based on force feedback previously output. As discussed above, the only force signals output by the device of the Jones patent are based on rotational position of the joints of the manipulator and/or the glove.

Independent Claim 78

Independent claim 78 recites “detecting a magnitude of the force feedback output at the force feedback interface.” As discussed above, the Jones patent fails to disclose or suggest “detecting a magnitude of the force feedback output” as recited in claim 78. While the Jones patent does disclose outputting force feedback, the Jones patent is utterly silent as to a magnitude of the force feedback being detected once the force feedback is output.

For at least these reasons, independent claims 60, 73, 77 and 78 are allowable over the Jones patent. At least because of their dependence upon claims 60 and 73, claims 62, 65, 66 and 74 are also allowable.

The Claims are Patentable over Harvill combined with Jones

Claims 60, 65, 70, 71, 73, 74, 77 and 78 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,986,643 to Harvill (“the Harvill patent”) in view of the Jones patent.

The Harvill patent discloses an apparatus for providing tactile stimulus to a part of the body of a physical operator when the user encounters a virtual object in a computer interface. The feedback is applied by changing the shape of various memory metals so the metals come in contact with the user. The movements of the user are sensed and input into a computer using various sensors. The Examiner states that it would have been obvious to provide feedback as claimed to the device in Harvill in view of the teaching in Jones. As discussed above, the Jones patent fails to disclose all of the recited elements of at least the independent claims. Moreover, for the following reasons, the Harvill patent fails to disclose all of the recited elements of the independent claims. In fact, the Harvill patent adds nothing to the Jones patent. Accordingly, the claims are allowable over the cited references, either alone or in combination.

Independent Claim 60

None of the sensors disclosed in the Harvill patent measure the force feedback output to the wearer of the glove. The only disclosed manner in which the force feedback is controlled is via calculations made by the various position sensors. There is no disclosure or suggestion whatsoever of measuring any output force feedback. Hence, the Harvill patent fails to disclose or suggest “a second sensor configured to measure the force feedback output collectively by the actuator and the force feedback member” as recited in claim 60.

Independent Claim 73

Similar to claim 60, the Harvill patent fails to disclose or suggest “determining a magnitude of force feedback output at the force feedback interface” as recited in claim 73.

Independent Claim 77

Independent claim 77 recites “a second sensor, the second sensor outputting an applied force signal based on the force feedback output.” The Harvill patent fails to disclose or suggest

outputting an applied force signal based on force feedback previously output. As discussed above, the Harvill patent is utterly silent as to outputting a force signal based on force feedback previously output.

Independent Claim 78

Independent claim 78 recites "detecting a magnitude of the force feedback output at the force feedback interface." As discussed above, the Harvill patent fails to disclose or suggest "detecting a magnitude of the force feedback output" as recited in claim 78. While the Harvill patent does disclose outputting force feedback, there is no disclosure or suggestion of a magnitude of the force feedback being detected once the force feedback is output.

For at least these reasons, claims 60, 73, 77 and 78 are allowable over the Harvill patent and the Jones patent, either alone or in combination.

Conclusion

Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. Applicant reiterates the request for an interview and respectfully request that the Examiner contact the undersigned before issuing an action in response to this reply.

Prompt and favorable consideration of this Amendment is respectfully requested.

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